

33. A filtering face mask that comprises:

- (a) a mask body that is adapted to fit over the nose and mouth of a wearer; and
- (b) an exhalation valve that is attached to the mask body, the exhalation valve

comprising:

(1) a valve seat that comprises:

- (i) a seal surface;
- (ii) an orifice that is circumscribed by the seal surface; and
- (iii) cross members that extend across the orifice to create a plurality of openings within the orifice; and

(2) a single flexible flap that has a fixed portion and a free portion and first and second opposing ends, the first end of the single flexible flap being associated with the fixed portion of the flap so as to remain at rest during an exhalation, and the second end being associated with the free portion of the flexible flap so as to be lifted away from the seal surface during an exhalation, the second end also being located below the first end when the filtering face mask is worn on a person, the flexible flap being positioned on the valve seat such that the flap is pressed towards the seal surface in an abutting relationship therewith when a fluid is not passing through the orifice, the flexible flap being secured to the valve seat at the fixed portion of the flap at two securement points, the two securement points being disposed outside a region encompassed by the valve seat orifice.

34. The filtering face mask of claim 33, wherein the valve seat comprises a plastic that is molded into an integral one-piece body.

35. The filtering face mask of claim 34, wherein the valve seat has been made by an injection molding technique.

36. The filtering face mask of claim 33, wherein the seal surface is substantially uniformly smooth to insure that a good seal occurs between the single flexible flap and the seal surface, and wherein the flexible flap is made from a material that is capable of allowing the flap to display a bias towards the seal surface.

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36. The filtering face mask of claim 33, wherein the exhalation valve is positioned on the mask body substantially opposite to a wearer's mouth, wherein the flexible flap is mounted to the valve seat in cantilever fashion.

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37. The filtering face mask of claim 39, wherein the exhalation valve also includes a valve cover, the flexible flap being held in position on the valve seat by mechanical means.

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The filtering face mask of claim 33, which mask further comprises:
a valve cover that is disposed over the valve seat and that comprises:

(i) an opening that is disposed directly in the path of fluid flow when the free portion of the flexible flap is lifted from the seal surface during an exhalation;

(ii) a fluid impermeable ceiling that increases in height in the direction of the flexible flap from the first end to the second end; and

(iii) cross members that are disposed within the opening of the valve cover.

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39. The filtering face mask of claim 58, wherein the opening in the valve cover is approximately parallel to the path traced by the second end of the flexible flap during its opening and closing.

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60. The filtering face mask of claim 38, wherein the valve cover and its opening direct exhaled fluid flow downwards when the mask is worn on a person.

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41. The filtering face mask of claim 40, wherein the valve cover has fluid-impermeable sidewalls.

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62. The filtering face mask of claim 58, wherein the opening in the valve cover is at least the size of the orifice in the valve seat.

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